

CLAIMS

1. A manufacturing method of carbon nanotubes for producing carbon nanotubes starting with a catalyst, wherein the catalyst is arranged on the inner face of a first electrode having a hollow, a second electrode is arranged so that an end thereof is positioned inside the hollow of the first electrode, and arc discharge is generated between the first electrode and the second electrode.
2. A manufacturing method of carbon nanotubes according to claim 1, wherein double-walled carbon nanotubes are grown as the carbon nanotubes.
3. A manufacturing method of carbon nanotubes according to claim 1, wherein single-walled carbon nanotubes are grown as the carbon nanotubes.
4. A manufacturing method of carbon nanotubes according to claim 1, wherein the arc discharge is performed in the depressurized atmosphere including only inert gas.
5. A manufacturing method of carbon nanotubes according to claim 4, wherein the arc discharge is performed in the depressurized atmosphere of helium gas, nitrogen gas, or argon gas.
6. A manufacturing method of carbon nanotubes according to claim 1, wherein the first electrode is a bowl-like electrode and the second electrode is a rod-like electrode.

7. A manufacturing method of carbon nanotubes according to claim 1, wherein while arc discharge is generated between the first electrode and the second electrode, carbon nanotubes are continuously produced.

8. Carbon nanotube manufacturing equipment comprising:

a vacuum chamber having a first electrode in which a hollow is included and a catalyst is arranged on the inner face, and a second electrode arranged so that an end thereof is positioned inside the hollow of the first electrode;

a gas introducing means for introducing inert gas into the vacuum chamber; and

a voltage application means for applying a given voltage between the first electrode and the second electrode to generate arc discharge.

9. Carbon nanotube manufacturing equipment according to claim 8, wherein the inert gas is helium, nitrogen, or argon gas.

10. Carbon nanotube manufacturing equipment according to claim 9, wherein the first electrode is a bowl-like electrode.

11. Carbon nanotube manufacturing equipment according to claim 8 comprising a recovery means for recovering carbon nanotubes to be produced.

12. A carbon nanotube being from 1 μm to 1 mm long.
13. A carbon nanotube being from 1 mm to 1 cm long.
14. A carbon nanotube being from 1 cm to 1 m long.
15. A carbon nanotube being from 1 m to 1 km long.